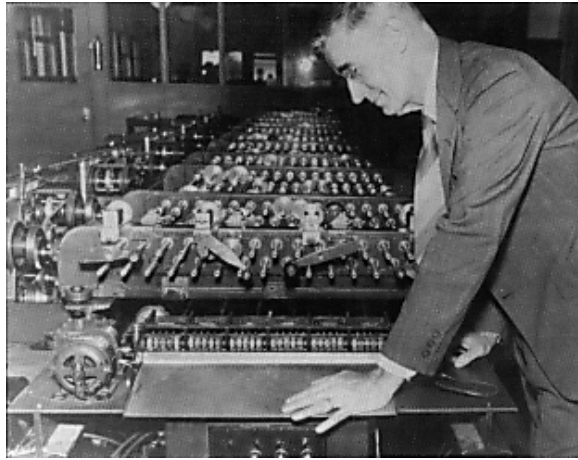
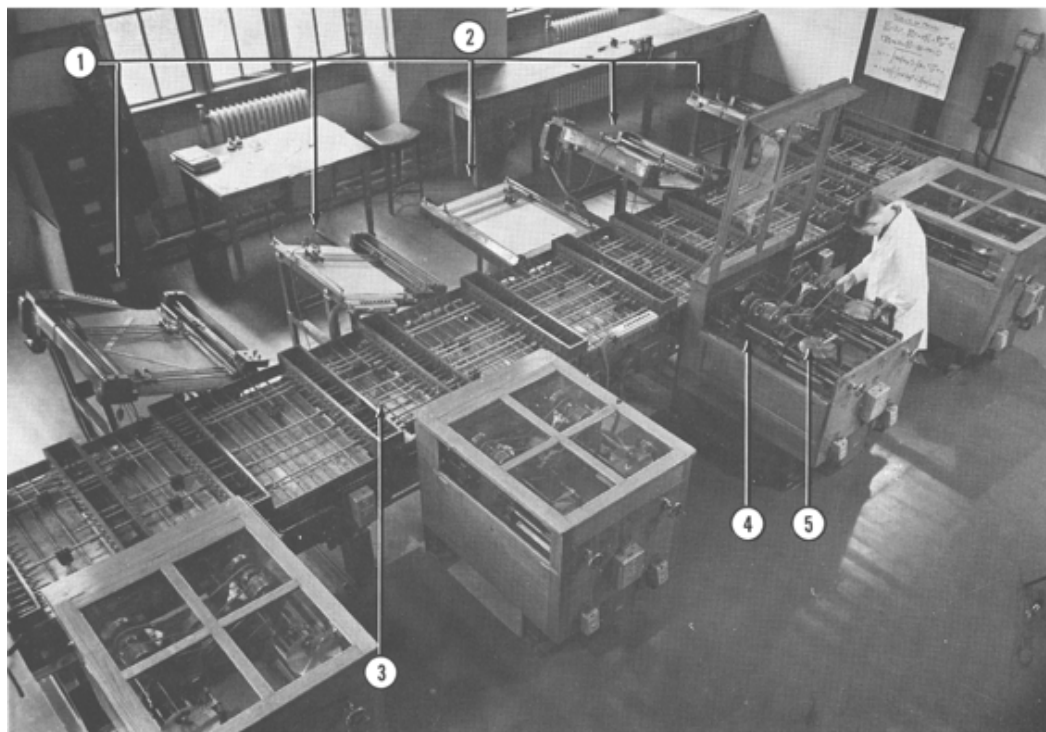


Vannevar Bush's Differential Analyzer



The first (relatively) large scale analog computer was the 'differential analyzer' invented and constructed at MIT by Vannevar Bush (1890-1974) in the early 1930's. The machine was a completely mechanical assembly of gears and shafts driven by electric motors. The top picture shows Bush and his differential analyzer in a U.S. Army laboratory during World War II.



1 Input table
2 Output table

3 Shafts and gears used
for interconnection

4 Torque amplifier
5 Integrator disk

The Bush differential analyzer is pictured in the science fiction movie *Earth vs. the Flying Saucers* (Columbia Pictures 1956), shown below. Click the control to see and hear the Bush DA working. It is a very short take, only a few seconds, and I doubt whether the machine was really capable of producing handwriting....



An even better take (in colour) of the differential analyzer appears in *When Worlds Collide* (George Pal 1951):



The still pictures were reproduced from IEEE Spectrum, July 1995.
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